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ABSTRACT

Word processing and the LOGO programing language are two microcomputer applications that are beginning to show benefits as learning tools in elementary school classrooms. Word processing packages are especially useful with beginning writers, whose lack of motor coordination often slows down their acquisition of competence in written communication. Software developed for beginning writers can: (1) provide learners with visual, motor, and even auditory support; (2) encourage learners to write more by minimizing mechanical drudgery; (3) encourage writers to focus on content rather than form; (4) increase the likelihood of revision; (5) provide learners with letter-quality output, which encourages sharing of writing; (6) promote social interaction, by making writing visible to passersby; (7) make writing appealing for special needs children; and (8) encourage positive attitudes toward learning. Researchers believe that while the graphics-oriented programing language LOGO does not teach the planning skills necessary for programing, it can help young learners by: developing problem-solving abilities; facilitating learning of mathematical concepts; and encouraging collaboration, social development, creativity, spatial relation development, and overall cognitive development--especially in special needs children. Teachers who understand both the power and limitations of these programs for children make the most effective use of both LOGO and word processing software. (SKC)

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Early Childhood Classrooms and Computers: Programs with Promise

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James L. Hoot and Michele Kimler

This digest discusses two promising computer programs for early childhood classrooms. These programs—word processing and Logo—are beginning to show benefits as learning tools. The role of the teacher as an essential element in the success of these programs is also explored.

During the 1980s, computers achieved widespread use in classrooms for young children. As we approach the 1990s, teachers are coming to realize that the mere presence of these computers does not assure student learning. Unsupported claims of early computer zealots are now giving way to a developing body of research which can assist early childhood educators in making justifiable use of these technological tools in early childhood curricula. The digest which follows discusses two uses of computers that, based upon recent research, appear especially productive as learning tools in classrooms—word processing and Logo programming.

Word Processing

Those who work with very young children are aware that children are generally quite effective in making themselves understood. Their language is very much alive, fresh, creative, and often unpredictable. While children's verbal language possesses tremendous potential for communicative competence, because of their lack of motor facility they have less potential for achieving equal competence in written communication.

Over the past five years, word processors specifically designed for children who are just beginning to use print have been developed. Experts are finding that these programs can support beginning writers in many ways; for example, word processing:

- —Provides visual, motor, and sometimes auditory, supports for unsophisticated learners.
- —Often encourages learners to write more since the mechanical drudgery traditionally associated with writing is minimized.
- —Encourages writers to focus on the content of what is said rather than the form or technical aspects of writing.
- —Increases the likelihood that children will revise text—a key process in effective writing.
- —Provides products that are printed with a letter-quality appearance that encourages children to share written communication (e.g. stories for the library, signs, banners, books).
- —Involves writing on a computer screen which is visible to passerbys. This public nature of word processing encourages social interaction in writing.
- —Makes writing especially appealing to limited English proficient and special needs children.
- —Encourages positive attitudes toward learning in many curricular areas.

Recent and Near-Future Developments

Over the past couple of years, word processors which "speak" text created by children have become available. Initial research suggests these devices are highly motivational and promote improved understanding of the relationships of letter and sound, and of word and sentence. In addition to "talking" word processors, programs are under development and will soon be available which create written text directly from spoken words. Thus, the richness of children's language may be captured without the necessity of typing text.

Logo and the Classroom

Logo is a highly sophisticated graphics-oriented programming language developed specifically for children. Logo, which was introduced into classrooms about seven years ago, is specially designed to enable children to become active participants in learning. To date, researchers believe that:

- —Logo programming develops problem-solving abilities. More specifically, such programming

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develops procedural problem–solving skills in which larger problems are broken down into smaller, more manageable chunks.

- Logo facilitates assimilation of basic geometric and mathematical concepts. Some researchers have even indicated success in using Logo to introduce concepts often considered too difficult for primary children.
- Children collaborate more when working on computer problems than when working on other classroom tasks.
- Learning how to plan well is not intrinsically guaranteed by the Logo programming environment, and such learning must be supported by teachers who know how to foster the development of planning skills.
- Logo may enhance social development of children. The Logo environment may encourage children to learn to cooperate, listen, and be critical in a constructive fashion, and to appreciate the work of others.
- Children who are working with Logo, engage in more self-directed explorations, exhibit more pleasure at discovery, use verbal and other types of problem solving strategies more often, and make greater improvement in attitudes to learning than do children who do not use Logo.
- Logo provides an environment which encourages divergent thinking and creativity.
- Students using Logo tend to improve in overall cognitive, social, and behavior skills.
- Logo promotes development of the ability to describe directions (spatial relation development).
- Logo is especially effective in motivating children with special needs.

Word Processing, Logo, and Classroom Teachers

Current literature tends to demonstrate consistency concerning the importance of the classroom teacher. The teacher has been found to be the single most influential determinant of success in creating problem–solvers through the use of Logo or improving the written communicative competence of children with word processing. Effective teachers have an understanding of both the power and limitations of these programs for children. Moreover, these teachers are well–grounded in knowledge of the cognitive processes being developed and of child development.

Conclusion

In the next decade, the use of computers as a learning tool will become even more prevalent. It will be necessary, therefore, for educators to become increasingly aware of what computers can and cannot do for the educational development of children. In this digest we have summarized developing research which, though it is far from definitive, is beginning to confirm the merits of using word processing and Logo in the early childhood curriculum.

FOR MORE INFORMATION

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